

10/523,264

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NEWS	3	FEB 27	New STN AnaVist pricing effective March 1, 2006
NEWS	4	APR 04	STN AnaVist \$500 visualization usage credit offered
NEWS	5	MAY 10	CA/CAPplus enhanced with 1900-1906 U.S. patent records
NEWS	6	MAY 11	KOREAPAT updates resume
NEWS	7	MAY 19	Derwent World Patents Index to be reloaded and enhanced
NEWS	8	MAY 30	IPC 8 Rolled-up Core codes added to CA/CAPplus and USPATFULL/USPAT2
NEWS	9	MAY 30	The F-Term thesaurus is now available in CA/CAPplus
NEWS	10	JUN 02	The first reclassification of IPC codes now complete in INPADOC
NEWS	11	JUN 26	TULSA/TULSA2 reloaded and enhanced with new search and and display fields
NEWS	12	JUN 28	Price changes in full-text patent databases EPFULL and PCTFULL
NEWS	13	JUL 11	CHEMSAFE reloaded and enhanced
NEWS	14	JUL 14	FSTA enhanced with Japanese patents
NEWS	15	JUL 19	Coverage of Research Disclosure reinstated in DWPI
NEWS	16	AUG 09	INSPEC enhanced with 1898-1968 archive
NEWS	17	AUG 28	ADISCTI Reloaded and Enhanced
NEWS EXPRESS		JUNE 30	CURRENT WINDOWS VERSION IS V8.01b, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 26 JUNE 2006.
NEWS HOURS			STN Operating Hours Plus Help Desk Availability
NEWS LOGIN			Welcome Banner and News Items
NEWS IPC8			For general information regarding STN implementation of IPC 8
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FILE LAST UPDATED: 28 Aug 2006 (20060828/ED)

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=> s lactone

57712 LACTONE

26733 LACTONES

L1 68730 LACTONE

(LACTONE OR LACTONES)

=> s l1 and (process or prepar? or synthes? or make or made or method)

2293501 PROCESS

1557381 PROCESSES

3424785 PROCESS

(PROCESS OR PROCESSES)

1674463 PREPAR?

124876 PREP

2190 PREPS

126858 PREP

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                (PREP OR PREPS)
2027842 PREPD
    17 PREPDS
2027854 PREPD
    (PREPD OR PREPDS)
    126710 PREPG
    12 PREPGS
    126721 PREPG
    (PREPG OR PREPGS)
2735557 PREPN
    205475 PREPNS
2890563 PREPN
    (PREPN OR PREPNS)
4794110 PREPAR?
    (PREPAR? OR PREP OR PREPD OR PREPG OR PREPN)
1557018 SYNTHES?
    237186 MAKE
    184918 MAKES
    409294 MAKE
    (MAKE OR MAKES)
1224311 MADE
    25 MADES
1224332 MADE
    (MADE OR MADES)
3177072 METHOD
1297068 METHODS
4108932 METHOD
    (METHOD OR METHODS)
L2      50670 L1 AND (PROCESS OR PREPAR? OR SYNTHES? OR MAKE OR MADE OR
METHOD
    )

=> s 12 and catalyst
    732724 CATALYST
    735615 CATALYSTS
    940602 CATALYST
    (CATALYST OR CATALYSTS)
L3      5495 L2 AND CATALYST

=> s 13 and oxirane
    18748 OXIRANE
    2792 OXIRANES
    19730 OXIRANE
    (OXIRANE OR OXIRANES)
L4      89 L3 AND OXIRANE

=> s 14 and carbonylation
    11584 CARBONYLATION
    184 CARBONYLATIONS
    11620 CARBONYLATION
    (CARBONYLATION OR CARBONYLATIONS)
L5      16 L4 AND CARBONYLATION
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10/523,264

=> dup rem 14 15

PROCESSING COMPLETED FOR L4

PROCESSING COMPLETED FOR L5

L6 89 DUP REM L4 L5 (16 DUPLICATES REMOVED)

=> d l6 ibib hitstr abs 1-89

L6 ANSWER 1 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2006:125022 CAPLUS

DOCUMENT NUMBER: 144:370516

TITLE: Ring opening polymerization initiated by methylaluminoxane/AlMe<sub>3</sub> complexes

AUTHOR(S): Florjanczyk, Zbigniew; Plichta, Andrzej; Sobczak, Marcin

CORPORATE SOURCE: Faculty of Chemistry, Warsaw University of Technology,

Warsaw, 00-664, Pol.

SOURCE: Polymer (2006), 47(4), 1081-1090

CODEN: POLMAG; ISSN: 0032-3861

PUBLISHER: Elsevier Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The ring-opening polymerization of cyclic ethers, carbonates and esters in the

presence of com. available methylaluminoxane/trimethylaluminum system has

been studied. MALDI-ToF end groups anal. indicates that in a majority of

systems considered, the polymerization process is initiated by insertion of a monomer into the Al-O-Al bond, generating alkoxide species,

which are active sites in coordination polymerization The polymerization of

six-membered carbonates proceeds selectively, forming linear poly-diols with high yields at moderate temps. The polymerization of oxirane and lactones is, however, accompanied by back-biting reactions leading to cyclic oligomers. The interaction of oxirane with aluminoxane electrophilic sites causes also the formation of cationic species, which initiate the polymerization of THF. The cationic species formed

in those systems were trapped by triphenylphosphine and identified by <sup>31</sup>P

NMR spectra.

REFERENCE COUNT: 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS

FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

L6 ANSWER 2 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:1238606 CAPLUS

10/523,264

DOCUMENT NUMBER: 144:150760  
TITLE: Enzyme-Catalyzed Ring-Opening Polymerization of  
Seven-Membered Ring Lactones Leading to  
Terminal-Functionalized and Triblock Polyesters  
AUTHOR(S): Srivastava, Rajiv K.; Albertsson, Ann-Christine  
CORPORATE SOURCE: Department of Fiber and Polymer Technology, School  
of

Chemical Science and Engineering, KTH Royal  
Institute

of Technology, Stockholm, SE-100 44, Swed.  
SOURCE: Macromolecules (2006), 39(1), 46-54

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Terminal-functionalized polyesters and triblock polyesters were  
synthesized by lipase-CA-catalyzed ring-opening polymerization of  
seven-membered ring lactones, i.e., 1,5-dioxepan-2-one (DXO) and  
 $\epsilon$ -caprolactone (CL), in the bulk in the presence of an appropriate  
alc. that acts as an initiator. To introduce a double bond at the  
chain  
end, 4-pentene-2-ol was used to initiate the polymerization of the  
lactones. The unsatn. introduced at the chain end in this way is  
a useful approach for synthesizing comb polymers. Two different  
dihydroxyl compds., viz. poly(caprolactone diol) and poly(ethylene  
glycol), were used as macro-initiators. Triblock copolymers were  
synthesized in this way, where the macro-initiator formed the  
middle block. Polymers having different degrees of polymerization were  
synthesized by varying the molar feed ratio of monomer to  
initiator. DXO and CL showed significant differences in reactivity  
toward  
lipase-CA-catalyzed polymerization initiated by different alcs. as  
initiators.  
The polymers were characterized by FTIR, NMR, SEC, optical microscopy,  
and  
DSC techniques.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR  
THIS

FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

L6 ANSWER 3 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:362102 CAPLUS

DOCUMENT NUMBER: 142:400324

TITLE: Curable compositions with low curing shrinkage and  
(laminated) products manufactured therewith

INVENTOR(S): Fujimoto, Toshikazu; Nushi, Seiji; Hayama, Yasushi

PATENT ASSIGNEE(S): Mitsubishi Rayon Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

10/523,264

FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005112952	A2	20050428	JP 2003-347229	20031006
PRIORITY APPLN. INFO.:			JP 2003-347229	20031006

AB The compns. comprise (A) urethane (meth)acrylates prepared from polyether-, polyester-, and/or polycarbonate-diols, diisocyanates, and OH-bearing (meth)acrylate esters, (B) (lactone-modified and/or alkoxyated) neopentyl glycol hydroxypivalate di(meth)acrylate, and (C) polymerization initiators. The compns. show excellent heat and yellowing resistance and high transparency, and are useful for optical instruments, interlayers of optical disks, casting products, etc.

L6 ANSWER 4 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN DUBLICATE 1  
ACCESSION NUMBER: 2005:621768 CAPLUS  
DOCUMENT NUMBER: 143:286228  
TITLE: Chromium(III) Octaethylporphyrinato  
Tetracarbonylcobaltate: A Highly Active, Selective,  
and Versatile Catalyst for Epoxide  
Carbonylation  
AUTHOR(S): Schmidt, Joseph A. R.; Lobkovsky, Emil B.; Coates,  
Geoffrey W.  
CORPORATE SOURCE: Department of Chemistry and Chemical Biology, Baker  
Laboratory, Cornell University, Ithaca, NY,  
14853-1301, USA  
SOURCE: Journal of the American Chemical Society (2005),  
127(32), 11426-11435  
CODEN: JACSAT; ISSN: 0002-7863  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 143:286228

AB The development of a highly active and selective porphyrin-based epoxide carbonylation catalyst, [(OEP)Cr(THF)<sub>2</sub>][Co(CO)<sub>4</sub>] (OEP = octaethylporphyrinato; THF = tetrahydrofuran), is detailed. The catalyst was a separated ion pair composed of a tetracarbonylcobaltate anion and an octahedral chromium porphyrin complex axially ligated by two THF ligands. Regarding the carbonylation of epoxides to  $\beta$ -lactones, the catalyst exhibited excellent turnover nos. (up to 10 000) and turnover frequencies (up to 1670 h<sup>-1</sup>), with regioselective carbonyl insertion occurring between the oxygen and the sterically less hindered carbon of the epoxide substrate. The complex was highly tolerant of nonprotic functional groups, carbonylating an array of

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aliphatic and cycloaliph. epoxides, as well as epoxides with pendant ethers, esters, and amides. With careful control of reaction conditions in the carbonylation of glycidyl esters, the exclusive production of either the  $\beta$ - or  $\gamma$ - lactone isomer was achieved. Through anal. of reaction stereochem., a mechanism for the formation of  $\gamma$ -lactone products was proposed. Overall, a broad array of synthetically useful lactones has been synthesized in a rapid and selective fashion by catalytic carbonylation using  $[(OEP)Cr(THF)_2][Co(CO)_4]$ .

REFERENCE COUNT: 96 THERE ARE 96 CITED REFERENCES AVAILABLE FOR THIS

FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

L6 ANSWER 5 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:589157 CAPLUS

DOCUMENT NUMBER: 143:266607

TITLE: Enantio- and diastereoselective construction of vicinal quaternary and tertiary carbon centers by catalytic Michael reaction of  $\alpha$ -substituted  $\beta$ -keto esters to cyclic enones

AUTHOR(S): Majima, Keisuke; Tosaki, Shin-ya; Ohshima, Takashi; Shibasaki, Masakatsu

CORPORATE SOURCE: Graduate School of Pharmaceutical Sciences, The University of Tokyo, Hongo, Bunkyo-ku, Tokyo, 113-0033, Japan

SOURCE: Tetrahedron Letters (2005), 46(32), 5377-5381  
CODEN: TELEAY; ISSN: 0040-4039

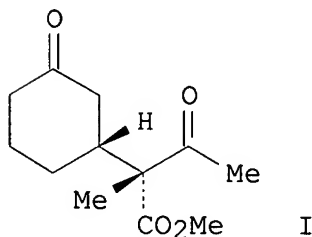
PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 143:266607

GI



AB A catalytic enantio- and diastereoselective Michael reaction was achieved to construct vicinal quaternary and tertiary carbon centers in one step.

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Using a catalytic amount of  $\text{La}(\text{O}-i\text{-Pr})_3$  and a N-linked-BINOL type ligand, the reaction of  $\alpha$ -substituted  $\beta$ -keto esters to cyclic enones provided the corresponding Michael adducts in up to quant. yield with a good diastereomeric ratio and enantiomeric excess for the major isomer, e.g., 1. An alternative catalyst preparation method using  $\text{La}(\text{OTf})_3$  instead of  $\text{La}(\text{O}-i\text{-Pr})_3$  was also examined

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L6 ANSWER 6 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:172164 CAPLUS

DOCUMENT NUMBER: 142:410952

TITLE: Kinetic Resolution and Chemoenzymatic Dynamic  
Kinetic

AUTHOR(S): Resolution of Functionalized  $\gamma$ -Hydroxy Amides  
Fransson, Ann-Britt L.; Boren, Linnea; Pamies,  
Oscar;

Baeckvall, Jan-E.

CORPORATE SOURCE: Department of Organic Chemistry, Arrhenius  
Laboratory,

SOURCE: Stockholm University, Stockholm, SE-10691, Swed.  
Journal of Organic Chemistry (2005), 70(7),  
2582-2587

CODEN: JOCEAH; ISSN: 0022-3263

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 142:410952

AB An efficient kinetic resolution of racemic  $\gamma$ -hydroxy amides  $\text{RCH}(\text{OH})\text{CH}_2\text{CH}_2\text{CON}(\text{CHMe}_2)_2$  ( $\text{R} = \text{Me}, \text{Et}, n\text{-Pr}, \text{NCCH}_2, \text{MeOCH}_2, \text{ClCH}_2$ ) was performed via *Pseudomonas cepacia* lipase (PS-C)-catalyzed transesterification. The enzyme PS-C tolerates both variation in the chain length and different functionalities giving good to high enantioselectivity (E values of up to >250). The combination of enzymic kinetic resolution with a ruthenium-catalyzed racemization led to a dynamic kinetic resolution. The use of 2,4-dimethyl-3-pentanol as a hydrogen source to suppress ketone formation in the dynamic kinetic resolution yields the corresponding acetates in good yield and good to high enantioselectivity (ee's up to 98%). The synthetic utility of this procedure was illustrated by the practical synthesis of the versatile intermediate  $\gamma$ -lactone, (R)-5-methyltetrahydrofuran-2-one.

REFERENCE COUNT: 62 THERE ARE 62 CITED REFERENCES AVAILABLE FOR THIS



RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L6 ANSWER 7 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:315237 CAPLUS

DOCUMENT NUMBER: 143:26147

TITLE:  $\beta$ - Lactone Synthesis from  
Epoxide and CO: Reaction Mechanism Revisited

AUTHOR(S): Stirling, Andras; Iannuzzi, Marcella; Parrinello,  
Michele; Molnar, Ferenc; Bernhart, Volker;

Luinstra,

Gerrit A.

CORPORATE SOURCE: Department of Chemistry and Applied Biosciences,  
ETH

Zurich, Zurich, Switz.

SOURCE: Organometallics (2005), 24(10), 2533-2537

CODEN: ORGND7; ISSN: 0276-7333

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The formation of  $\beta$ - lactone from epoxide and CO catalyzed by  
Co(CO)<sub>4</sub>- was studied using a novel ab initio mol. dynamics approach.  
Employing the so-called metadynamics methodol., it is possible to  
unravel

the reaction mechanism of the catalyzed lactone formation in a  
fairly unbiased way. The authors were able to reproduce all the  
elementary steps within relatively short simulation time: the epoxide  
opening, the CO insertion, the CO addition to the Co site, the  
lactone ring formation, and the product dissociation, as obtained in  
previous static calcns. The simulations revealed that the lowest

energy

path goes through a stable intermediate featuring a metalla-oxo-furanyl  
ring. The simulations also indicated a new, higher energy path, in

which

the lactone ring formation precedes the CO uptake of the Co  
center. This route becomes competitive when the Lewis acid attached to  
the lactone O is softer.

REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR  
THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L6 ANSWER 8 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:1024762 CAPLUS

DOCUMENT NUMBER: 144:412912

TITLE: Enzyme catalyzed synthesis of polyesters

AUTHOR(S): Varma, Indra K.; Albertsson, Ann-Christine;

Rajkhowa,

Ritimoni; Srivastava, Rajiv K.

CORPORATE SOURCE: Centre for Polymer Science and Engineering, Indian  
Institute of Technology, New Delhi, Delhi, 110016,  
India

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SOURCE: Progress in Polymer Science (2005), 30(10), 949-981  
CODEN: PRPSB8; ISSN: 0079-6700  
PUBLISHER: Elsevier B.V.  
DOCUMENT TYPE: Journal; General Review  
LANGUAGE: English

AB In this review, lipase-catalyzed ring-opening polymerization of lactones, lactides and macrolides, cyclic carbonates, cyclic phosphates, and cyclic depsipeptides, and copolymn. of oxiranes with dicarboxylic acid anhydrides leading to the formation of polyesters, polycarbonates, polyphosphates and poly(ester-amides) has been examined in detail. The effect of reaction parameters, i.e. solvent, temperature, and enzyme and monomer concentration, on the rate and mol. weight of the polymers is discussed. Synthesis of polyesters by step-growth polycondensation reactions using simple diacids and diols, hydroxy acids, or transesterification reaction of simple or activated diesters with diols has also been surveyed. The general mechanisms of ring-opening and step-growth polymerization have also been considered. Lipase hydrolyzes the ester bonds of polyesters in an aqueous medium and recombines the cleaved moiety in non-aqueous medium. The possibility of utilizing such reactions for the repetitive recycling of biodegradable polyesters has been highlighted.

REFERENCE COUNT: 186 THERE ARE 186 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE

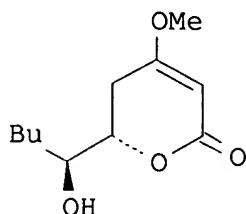
RE

#### FORMAT

L6 ANSWER 9 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2005:38952 CAPLUS  
DOCUMENT NUMBER: 142:155702  
TITLE: Stereoselective synthesis of (-)-pestalotin  
AUTHOR(S): Kumar, A. Shashidhar; Bhaket, Pushpal; Rao, B. Venkateswara  
CORPORATE SOURCE: Division of Organic Chemistry, Indian Institute of Chemical Technology, Hyderabad, 500 007, India  
SOURCE: ARKIVOC (Gainesville, FL, United States) (2005), (3), 74-82  
CODEN: AGFUAR  
URL: [http://www.arkat-usa.org/ark/journal/2005/I01\\_General/1219/04-1219J.pdf](http://www.arkat-usa.org/ark/journal/2005/I01_General/1219/04-1219J.pdf)  
PUBLISHER: Arkat USA Inc.  
DOCUMENT TYPE: Journal; (online computer file)

10/523,264

LANGUAGE: English  
OTHER SOURCE(S): CASREACT 142:155702  
GI



I

AB The asym. synthesis of (-)-pestalotin (I) is described using OsO<sub>4</sub>-catalyzed asym. dihydroxylation and utilization of substituted aromatic system as masked  $\beta$ -ketoester as the key steps in the reaction sequence.

REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L6 ANSWER 10 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 2

ACCESSION NUMBER: 2004:878384 CAPLUS

DOCUMENT NUMBER: 141:367623

TITLE: Catalytic carbonylation of epoxides into lactones

INVENTOR(S): Drent, Eit; Ernst, Rene

PATENT ASSIGNEE(S): Shell Internationale Research Maatschappij B.V., Neth..

SOURCE: PCT Int. Appl., 16 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004089923	A1	20041021	WO 2004-EP50477	20040407
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			

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RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,  
BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,  
SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,  
TD, TG

EP 1615901 A1 20060118 EP 2004-726177 20040407  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL,

SK, HR

CN 1771238 A 20060510 CN 2004-80009540 20040407  
US 2005014977 A1 20050120 US 2004-820958 20040408

PRIORITY APPLN. INFO.: EP 2003-252260 A 20030409

WO 2004-EP50477 W 20040407

OTHER SOURCE(S): CASREACT 141:367623

AB A process for the carbonylation of an epoxide (e.g., ethylene  
oxide) in a lactone (e.g.,  $\beta$ -propiolactone) is described by  
reacting the epoxide with carbon monoxide in the presence of a  
catalyst system containing two components, where the first component  
is a source of one or more metals selected from cobalt, ruthenium, and  
rhodium, and the second component is a coordination complex of a  
tetrapyrrole compound with one or more of the metals belonging to

Groups

IIIA and IIIB, lanthanides, and actinides.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR  
THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L6 ANSWER 11 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 3

ACCESSION NUMBER: 2004:117168 CAPLUS

DOCUMENT NUMBER: 140:163694

TITLE: Catalyst and procedure for the carbonylation  
of oxiranes

INVENTOR(S): Luinstra, Gerrit; Molnar, Ferenc; Rieger, Bernhard;  
Allmendinger, Markus

PATENT ASSIGNEE(S): BASF AG, Germany

SOURCE: Ger. Offen., 9 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10235317	A1	20040212	DE 2002-10235317	20020801
WO 2004012860	A1	20040212	WO 2003-EP8479	20030731
W: JP, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				

10/523,264

EP 1545773                      A1      20050629                      EP 2003-766380                      20030731  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK  
JP 2006500339                      T2      20060105                      JP 2004-525400                      20030731  
US 2005256320                      A1      20051117                      US 2005-523263                      20050307  
PRIORITY APPLN. INFO.:                      DE 2002-10235317                      A      20020801  
  
WO 2003-EP8479                      W      20030731

OTHER SOURCE(S):                      CASREACT 140:163694; MARPAT 140:163694  
AB    The production of lactones takes place via catalytic carbonylation  
of oxiranes, whereby a catalyst system from (a) at  
least a cobalt compound as component A and (b) at least a metal  
compound  
MXxRn-x [M = alkaline-earth metal or metal of the groups 3, 4 or  
preferably 12  
or 13 of the periodic table of the elements (e.g., Al, Mg, Zn, Sn); R  
= H,  
(un)substituted hydrocarbon (except at the carbon atoms connected with  
M);  
X = anion (Cl, Br, I, sulfonate oxide, alkoxide, amide); n = number  
which  
corresponds to the value of M; x number within the range of 0 to n;  
whereby n  
and x are so selected that charge neutrality results] as component B of  
catalyst, is used. Thus,  $\beta$ -butyrolactone was prepd  
in 96% yield from propylene oxide via carbonylation with CO in the  
presence of a catalytic amount of dicobaltoctacarbonyl and Me3Al.

L6    ANSWER 12 OF 89    CAPLUS    COPYRIGHT 2006 ACS on STN DUPLICATE 4  
ACCESSION NUMBER:                      2004:117167    CAPLUS  
DOCUMENT NUMBER:                      140:164342  
TITLE:                                      Catalyst and procedure for carbonylation of  
oxiranes to lactones  
INVENTOR(S):                              Luinstra, Gerrit; Rieger, Bernhard; Allmendinger,  
Markus  
PATENT ASSIGNEE(S):                      BASF AG, Germany  
SOURCE:                                      Ger. Offen., 8 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE:                              Patent  
LANGUAGE:                                      German  
FAMILY ACC. NUM. COUNT:                      1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.
DE 10235316	A1	20040212	DE 2002-10235316
WO 2004012861	A1	20040212	WO 2003-EP8479
W: JP, US			
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR			
EP 1558385	A1	20050803	EP 2003-766379

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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK  
JP 2006500338 T2 20060105 JP 2004-525399 20030731  
US 2005240032 A1 20051027 US 2005-523264 20050307  
PRIORITY APPLN. INFO.: DE 2002-10235316 A 20020801  
WO 2003-EP8478 W 20030731

OTHER SOURCE(S): MARPAT 140:164342

AB Enantiomer-enriched mixts. of 4-member-ring lactones, used for  
the manufacture of biodegradable polyesters, were manufactured by  
catalytic

carbonylation of racemic oxiranes in the presence of  
catalyst system comprising (a) neutral or anionic transition metal  
complex of a group V-XI metal, and (b) a chiral Lewis acid, with a  
proviso. For example, a solution prepared by adding 0.39 mmol  
(1R,2R)-(-)-[1,2-cyclohexanediamino-N,N'-bis(3,5-di-tert-  
butylsalicylidene)]chromium(III) chloride to a cooled (0°) mixture of  
0.39 mmol Na[Co(CO)<sub>4</sub>] and 8 mL racemic propylene oxide under Ar was  
pressurized with 60-65 bar CO in an autoclave and the reaction carried  
out

for 1/2 h at ≤25° to give 25% conversion of propylene oxide  
into β-butyrolactone comprising 8% enantiomeric excess of  
S-β-butyrolactone. This (2.0 g) was kept for 1 wk at ambient  
temperature

with 10.4 mg tetrahexylammonium acetate to give 369 mg  
poly(hydroxybutyrate).

L6 ANSWER 13 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:454485 CAPLUS

DOCUMENT NUMBER: 141:174023

TITLE: Efficient addition of acid enediolates to epoxides

AUTHOR(S): Gil, Salvador; Torres, Mercedes; Ortuzar, Natalia;  
Wincewicz, Richard; Parra, Margarita

CORPORATE SOURCE: Department of Organic Chemistry, University of  
Valencia, Valencia, 46100, Spain

SOURCE: European Journal of Organic Chemistry (2004), (10),  
2160-2165

CODEN: EJOCFK; ISSN: 1434-193X

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 141:174023

AB The new conditions to facilitate the addition of dianions of carboxylic  
acids, such as phenylacetic acid, to epoxides as an alternative  
method to the use of aluminum enolates are reported. These  
conditions require the use of a sub-stoichiometric (10%) amount of an  
amine

for dianion generation and the previous activation of the epoxide with  
LiCl. Other Lewis acids have been shown to be less effective. Yields  
of

the resulting γ-hydroxy acids or γ- lactones are good

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but only low diastereoselectivity is attained, which has not been controlled despite attempts at optimization.

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L6 ANSWER 14 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 5

ACCESSION NUMBER: 2004:45413 CAPLUS

DOCUMENT NUMBER: 140:217451

TITLE: A readily synthesized and highly active  
epoxide carbonylation catalyst based on a  
chromium porphyrin framework. Expanding the range  
of

available  $\beta$ - lactones

AUTHOR(S): Schmidt, Joseph A. R.; Mahadevan, Viswanath;  
Getzler,

CORPORATE SOURCE: Yutan D. Y. L.; Coates, Geoffrey W.  
Department of Chemistry and Chemical Biology, Baker  
Laboratory, Cornell University, Ithaca, NY,  
14853-1301, USA

SOURCE: Organic Letters (2004), 6(3), 373-376  
CODEN: ORLEF7; ISSN: 1523-7060

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 140:217451

AB Catalytic carbonylation of epoxides to  $\beta$ - lactones was  
effected by a highly active and selective bimetallic catalyst  
comprised of a chromium(III) porphyrin cation and a cobalt  
tetracarbonyl  
anion. The complex is readily synthesized from com. available  
comps. in high yield. Carbonylation of numerous linear epoxides, as  
well

as bicyclic epoxides derived from 8- and 12-membered hydrocarbons,  
proceeded with high activity, selectivity, and yield.

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L6 ANSWER 15 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:1057348 CAPLUS

DOCUMENT NUMBER: 142:393590

TITLE: Biodegradable elastomers from oxiranes and  
lactones

AUTHOR(S): Spurcaci, Bogdan; Buzdugan, Emil; Ghioca, Paul;  
Nicolae, Cristian; Serban, Sever; Iancu, Lorena

CORPORATE SOURCE: Inst. Natl. de Cercetare-Dezvoltare pentru Chim. si  
Petrochim.-ICECHIM Bucuresti, Bucharest, 060021,  
Rom.

SOURCE: Materiale Plastice (Bucharest, Romania) (2004),  
41(3),

127-136

CODEN: MPLAAM; ISSN: 0025-5289

PUBLISHER: SYSCOM 18 SRL

DOCUMENT TYPE: Journal

LANGUAGE: Romanian

AB The polymerization of caprolactone with methyloxirane to prepare a biodegradable elastomer is studied. Optimization of the catalyst system, based on triisobutylaluminum and cocatalysts is attempted.

L6 ANSWER 16 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:525282 CAPLUS

DOCUMENT NUMBER: 141:191139

TITLE: The crosslinking reaction of bicyclic bis( $\gamma$ -lactone) with triglycidyl isocyanurate and properties

AUTHOR(S): Zhang, Chenxi; Ochiai, Bungo; Endo, Takeshi

CORPORATE SOURCE: Dep. Polymer Sci. Eng., Fac. Eng., Yamagata Univ., Yonezawa, 992-8510, Japan

SOURCE: Nettowaku Porima (2004), 25(2), 66-73

CODEN: NPORF2; ISSN: 1342-0577

PUBLISHER: Gosei Jushi Kogyo Kyokai

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB Anionic copolymn. of bicyclic bis( $\gamma$ -lactone) with triglycidyl isocyanurate was carried out to obtain the corresponding crosslinked polymer quant. by controlling the copolymn. conditions.

This

crosslinking reaction proceeded with the successive double ring-opening isomerization of bicyclic bis( $\gamma$ -lactone) and the ring-opening of oxiranes alternately to obtain the crosslinked polyesters having ketone groups. The structure of the alternating copolymer was confirmed by IR spectra and elemental anal. The glass transition temperature of the crosslinked polymers was controllable by the addition

of styrene oxide. The volume shrinkage during the crosslinking could be

suppressed by ring-opening of the bicyclic bis( $\gamma$ -lactone).

L6 ANSWER 17 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:994883 CAPLUS

DOCUMENT NUMBER: 141:140916

TITLE: Initiator for ring opening polymerization of cyclic ester, its preparation and method for inducing polymerization

INVENTOR(S): Chen, Xuesi; Tang, Chaohui; Jing, Xiabin; Liang, Qizhi; Bian, Xianchao; Yang, Lixin

PATENT ASSIGNEE(S): Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 25 pp.

CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese



10/523,264

FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
CN 1392176	A	20030122	CN 2002-123916	20020709
PRIORITY APPLN. INFO.:			CN 2002-123916	20020709

AB The initiator is prepared from Sr/NH<sub>3</sub> and organic compound or epoxyalkane/acetonitrile by dissolving Sr in liquid NH<sub>3</sub>, allowing to react with organic compound or epoxyalkane/acetonitrile for 10- 60 min, heating at 0-40° to remove NH<sub>3</sub>, grinding, and aging at 70-200° for 0.5-48 h. The epoxyalkane is oxirane and/or epoxypropane, and its molar ratio to Sr is 1-2. The ester is C<sub>4</sub>-6 lactone (such as  $\beta$ -butyrolactone,  $\delta$ -valerolactone, and/or  $\epsilon$ -caprolactone) or Me benzoate, and its ratio to Sr is 1-2. The alc. is C<sub>1</sub>-7 alc. (such as methanol, 1,2- ethanediol, and/or benzyl alc.), polyethylene glycol, or polyethylene glycol mono-Me ether, and the ratio of OH to Sr is 2-5. The molar ratio of acetonitrile to Sr is 0.1-0.3. Thus, a catalyst prepared by dissolving strontium metal in liquid ammonia; reacting with propylene oxide; vaporizing excess ammonia at 25°; and drying/grinding was used to initiate polymerization of  $\epsilon$ -caprolactone at 25° and gave a polymer having mol. weight 148K and 98.4% yield in 5 min.

L6 ANSWER 18 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2003:266434 CAPLUS  
DOCUMENT NUMBER: 139:7318  
TITLE: Biodegradable Polymersomes  
AUTHOR(S): Meng, Fenghua; Hiemstra, Christine; Engbers, Gerard H.  
CORPORATE SOURCE: M.; Feijen, Jan  
Institute for Biomedical Technology (BMTI), Polymer Chemistry and Biomaterials Group, Department of Chemical Technology, University of Twente, Enschede, 7500, Neth.  
SOURCE: Macromolecules (2003), 36(9), 3004-3006  
CODEN: MAMOBX; ISSN: 0024-9297  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB This communication reported the preparation of biodegradable polymersomes from amphiphilic block copolymers based on PEG and polyesters or polycarbonates. All block copolymers were synthesized by ring-opening polymerization of cyclic esters, e.g., DL-lactide (DLA),

$\epsilon$ -caprolactone (CL), or carbonates, e.g., trimethylene carbonate (TMC), in the presence of zinc bis[bis(trimethylsilyl)amide] (97 % ) and monomethoxypoly(ethylene glycol) (methoxy PEG, 5800 and 1200) at room temperature. Similar to the calcium bis[bis(trimethylsilyl)amide] catalyst system, zinc bis[bis(trimethylsilyl)amide] combined with methoxy PEG initiated the ring-opening polymerization of lactides and lactones with high conversion, affording block copolymers with a controlled mol. weight and low polydispersity index. Besides its high activity, its low toxicity renders the zinc-based catalyst attractive for the synthesis of copolymers for in vivo applications.

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 19 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 6

ACCESSION NUMBER: 2003:246947 CAPLUS

DOCUMENT NUMBER: 138:320793

TITLE: Multisite catalysis: A mechanistic study of  $\beta$ -lactone synthesis from epoxides and CO-insights into a difficult case of homogeneous catalysis

AUTHOR(S): Molnar, Ferenc; Luinstra, Gerrit A.; Allmendinger, Markus; Rieger, Bernhard

CORPORATE SOURCE: Polymer Research, BASF Aktiengesellschaft, Ludwigshafen, 67056, Germany

SOURCE: Chemistry--A European Journal (2003), 9(6), 1273-1280

CODEN: CEUJED; ISSN: 0947-6539

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Carbonylation of epoxides with a combination of Lewis acids and cobalt carbonyls was studied by both theor. and exptl. methods. Only multisite catalysis opens a low-energy pathway for trans opening of oxirane rings. This ring-opening reaction is not easily achieved with a single-site metal catalyst due to structural and thermodyn. constraints. The overall reaction pathway includes epoxide ring

opening, which requires both a Lewis acid and a tetracarbonylcobaltate nucleophile, yielding a cobalt alkyl-alkoxy - Lewis acid moiety.

After CO

insertion into the Co-Calkyl bond, lactone formation results from a nucleophilic attack of the alkoxy Lewis acid entity on the acylium

carbon atom.

A theor. study indicates a marked influence of the Lewis acid on both ring-opening and lactone-formation steps, but not on carbonylation. Strong Lewis acids induce fast ring opening, but slow

lactone formation, and visa versa: a good balance of Lewis acidity

would give the fastest catalytic cycle as all steps have low barriers. Exptl., carbonylation of propylene oxide to  $\beta$ -butyrolactone was monitored by online ATR-IR techniques with a mixture of tetracarbonylcobaltate and Lewis acids, namely  $\text{BF}_3$ ,  $\text{Me}_3\text{Al}$ ,  $\text{Me}_2\text{Al} \cdot \text{diglyme}$ , and a combination of  $\text{Me}_3\text{Al}$ /dicobaltoctacarbonyl. We found that the last two mixts. are extremely active in lactone formation.

REFERENCE COUNT: 61 THERE ARE 61 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L6 ANSWER 20 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:98609 CAPLUS

DOCUMENT NUMBER: 138:321674

TITLE: Preparation of supported yttrium alkoxides as catalysts for the polymerization of lactones and oxirane

AUTHOR(S): Martin, E.; Dubois, Ph.; Jerome, R.

CORPORATE SOURCE: Center for Education and Research on Macromolecules,

University of Liege, Liege, 4000, Belg.

SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry

(2003), 41(4), 569-578

CODEN: JPACEC; ISSN: 0887-624X

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Two methods have been reported that allow yttrium alkoxides to be supported on porous silica and to be used afterward as heterogeneous catalysts in the ring-opening polymerization of oxirane and  $\epsilon$ -caprolactone. In the two methods, [tris(hexamethyldisilyl)-amide yttrium  $\{\text{Y}[\text{N}(\text{SiMe}_3)_2]_3\}$  is the metal alkoxide precursor. It is directly reacted with the silanol groups of the

support, in the first method, and this is followed by alcoholysis of the unreacted amide groups. The flexibility of this method seems to be limited because the grafting d. and the structure of the grafted Y alkoxide (less than one alkoxide by metal)

are independent of the exptl. conditions. In the second method,  $\text{Y}[\text{N}(\text{SiMe}_3)_2]_3$  is first reacted with 1 or 2 equiv of alc. with the formation of the mixed Y alkoxide/amide. The amide functions are used to

attach Y to the support. This method is free from side reactions, quite reproducible, and well suited to support one type of active species (monoalkoxide or dialkoxide). Preliminary expts. with  $\epsilon$ -caprolactone polymerization have confirmed the activity of the supported Y alkoxide, whatever preparation method is used.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS

## RECORD. ALL CITATIONS AVAILABLE IN THE RE

## FORMAT

L6 ANSWER 21 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 7

ACCESSION NUMBER: 2002:122931 CAPLUS

DOCUMENT NUMBER: 136:183537

TITLE: Process and catalysts for the  
carbonylation of oxiranes and alkanols into  
alkyl hydroxyalkanoatesINVENTOR(S): Crabtree, Simon Peter; Henderson, Richard Kevin;  
Walker, Andrew James; Willet, Paul

PATENT ASSIGNEE(S): Kvaerner Process Technology Limited, UK

SOURCE: PCT Int. Appl., 23 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002012161	A1	20020214	WO 2001-GB3605	20010809
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1179524	A1	20020213	EP 2000-306838	20000810
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
AU 2001078593	A5	20020218	AU 2001-78593	20010809
PRIORITY APPLN. INFO.:			EP 2000-306838	A 20000810
			GB 2000-19753	A 20000810
			GB 2000-30535	A 20001214
			WO 2001-GB3605	W 20010809

OTHER SOURCE(S): CASREACT 136:183537; MARPAT 136:183537

AB A process is described for the carbonylation of an oxirane, such as ethylene oxide, which comprises reacting oxirane (e.g., ethylene oxide) under carbonylation conditions with carbon monoxide in a solvent, such as alkanol, for example:

in

the presence of a cobalt catalyst (e.g., cobalt acetate tetrahydrate) and of an N-alkylated azole promoter, such as 1-methylpyrazole, and recovering the resulting carbonyl:

such

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as an alkyl ester of 3-hydroxypropionic acid, for example, Me  
3-hydroxypropionate.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR  
THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L6 ANSWER 22 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 8

ACCESSION NUMBER: 2002:119292 CAPLUS

DOCUMENT NUMBER: 136:185756

TITLE: Process and catalysts for the  
carbonylation of oxiranes into  
lactones or with alkanols into alkyl  
hydroxyalkanoates

INVENTOR(S): Crabtree, Simon Peter; Henderson, Richard Kevin;  
Walker, Andrew James; Willett, Paul

PATENT ASSIGNEE(S): Kvaerner Process Technology Limited, UK

SOURCE: Eur. Pat. Appl., 10 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1179524	A1	20020213	EP 2000-306838	20000810
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
WO 2002012161	A1	20020214	WO 2001-GB3605	20010809
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2001078593	A5	20020218	AU 2001-78593	20010809
PRIORITY APPLN. INFO.:			EP 2000-306838	A 20000810
			GB 2000-19753	A 20000810
			GB 2000-30535	A 20001214
			WO 2001-GB3605	W 20010809

OTHER SOURCE(S): MARPAT 136:185756

AB The carbonylation of an oxirane, such as ethylene oxide,  
comprises reacting the oxirane under carbonylation conditions  
with carbon monoxide in a solvent, such as alkanol, for example  
methanol,

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in the presence of a cobalt catalyst and of an N-alkylated azole promoter, such as 1-methylpyrazole, and recovering the resulting carbonylation product, such as an alkyl ester of 3-hydroxypropionic acid,

for example Me 3-hydroxypropionate.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L6 ANSWER 23 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 9

ACCESSION NUMBER: 2002:64776 CAPLUS

DOCUMENT NUMBER: 136:279281

TITLE: Synthesis of  $\beta$ - Lactones: A  
Highly Active and Selective Catalyst for  
Epoxide Carbonylation

AUTHOR(S): Getzler, Yutan D. Y. L.; Mahadevan, Viswanath;  
Lobkovsky, Emil B.; Coates, Geoffrey W.

CORPORATE SOURCE: Department of Chemistry and Chemical Biology, Baker  
Laboratory, Cornell University, Ithaca, NY, 14853,  
USA

SOURCE: Journal of the American Chemical Society (2002),  
124(7), 1174-1175

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 136:279281

AB A new highly active and selective catalyst for the  
synthesis of  $\beta$ - lactones from CO and epoxides is  
reported. The catalyst, [(N,N'-bis(3,5-di-tert-  
butylsalicylidene)phenylenediamino)Al(THF)2][Co(CO)4]  
([(salph)Al(THF)2][Co(CO)4]) is easily prepared from the  
corresponding (salph)AlCl and NaCo(CO)4. At 50° and 880 psi of CO,  
the catalyst (1 mol %) carbonylates epoxides such as propylene  
oxide, 1-butene oxide, epichlorohydrin, and isobutylene oxide to the  
lactones  $\beta$ -butyrolactone,  $\beta$ -valerolactone,  
 $\gamma$ -chloro- $\beta$ -butyrolactone, and  $\beta$ -methyl- $\beta$ -  
butyrolactone in high yield. (R)-Propylene oxide was carbonylated to  
(R)- $\beta$ -butyrolactone with retention of stereochem.

REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L6 ANSWER 28 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:598921 CAPLUS

DOCUMENT NUMBER: 136:202112

TITLE: Synthesis of new derivatives from vegetable  
sunflower oil methyl ester via epoxidation and  
oxirane opening

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AUTHOR(S): Pages, Xavier; Alfos, Carine  
CORPORATE SOURCE: ITERG, French Institute for Fats and Oils, Pessac, 33600, Fr.  
SOURCE: Oleagineux, Corps Gras, Lipides (2001), 8(2), 122-125  
CODEN: OCLOEX; ISSN: 1258-8210  
PUBLISHER: John Libbey Eurotext  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Epoxidized esters were produced from high oleic sunflower Me esters (HOSME) using H<sub>2</sub>O<sub>2</sub> and formic acid, with epoxidn. efficiency of 90% at pilot scale (5 kg). Epoxidized esters produced from HOSME have 0 hydroxyl value, 5.2/4.5 oxirane value, and 1.7/1.5 I value. Cleavage of the oxirane group of epoxidized esters with different reactants was carried out to produce derivs. for use in lubrication, detergency, and as chemical intermediates. The reaction of epoxy-HOSME with an excess of oleic acid was conducted under atmospheric pressure without any catalyst or solvent. The oxirane ring opening led to complete estolide formation, and after neutralization, GC and HPLC data indicate that the estolides comprise a mixture of C-36 (oleates of Me hydroxystearate) and C-54 (di-oleates of Me dihydroxystearate). Oxirane ring opening with alcs. (ethanol and octanol) was carried out under acid catalysis at 100° and atmospheric pressure. Ether-alcs. and secondary products were identified, resulting from dehydration, transesterification and dimerization side reactions. The cleavage reaction of epoxy-HOSME with butylamine was conducted under pressure, at high temperature (180/200°). Both transesterification and opening of the oxirane group occur under these conditions. Reaction products are composed of amides formed by transesterification and a mixture of fatty amines/imines obtained by ring opening.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

L6 ANSWER 29 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2000:148745 CAPLUS  
DOCUMENT NUMBER: 132:237382  
TITLE: Cationic activated monomer polymerization of heterocyclic monomers  
AUTHOR(S): Kubisa, P.; Penczek, S.  
CORPORATE SOURCE: Center of Molecular and Macromolecular Studies, Polish

Academy of Sciences, Lodz, 90-363, Pol.  
 SOURCE: Progress in Polymer Science (2000), Volume Date  
 1999, 24(10), 1409-1437  
 CODEN: PRPSB8; ISSN: 0079-6700  
 PUBLISHER: Elsevier Science Ltd.  
 DOCUMENT TYPE: Journal; General Review  
 LANGUAGE: English

AB A review with 65 refs. In the first part of this review the meaning of activation is discussed and selected examples of polymerization processes in which activation of monomer is required prior to actual propagation are presented. In some systems, activation of monomer proceeds with such a strong interaction between an activator and monomer that a new chemical entity is derived from the monomer. To describe the mechanism of such a process, the term "Activated Monomer Mechanism" has been coined. The main part of the review is concerned with cationic Activated Monomer (AM) polymerization of cyclic ethers. In this process, cyclic ether is activated by formation of protonated species in the presence of a protic acid. Reaction of the protonated (activated) cyclic ether with hydroxyl group containing compds. leads to ring opening reforming the hydroxyl group. Several repetitions of such a reaction constitute a chain process. Thus, in AM polymerization of cyclic ethers hydroxyl group containing compds. act as initiator, protic acid is a catalyst, growing chain end is fitted with hydroxyl group and the charged species is a protonated monomer. The important feature of such a polymerization mechanism is that due to the absence of charged species at the growing chain end, back-biting leading to the formation of macrocyclics can be eliminated. The mechanism and kinetics of AM polymerization of cyclic ethers is discussed and the approach allowing one to determine the rate constant for propagation involving activated monomer species is outlined. The application of the AM concept to the copolymn. of cyclic ethers as well as to the polymerization of monomers containing both initiating (hydroxyl groups) and propagating (cyclic ether) functions within one mol. are presented. In the subsequent parts of the review, examples of cationic AM polymerization of other types of heterocyclic monomers, including cyclic acetals, cyclic esters (lactones), amines and amides (lactams), are given. Finally, the polyaddn. of oxiranes to derivs. of phosphoric acid is discussed. Although this system does not



conform to the AM polymerization scheme, it bears formal resemblance to earlier

systems in such a sense that the activation of the cyclic ether is required for the reaction to occur.

REFERENCE COUNT: 65 THERE ARE 65 CITED REFERENCES AVAILABLE FOR THIS

FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

L6 ANSWER 30 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:555722 CAPLUS

DOCUMENT NUMBER: 132:194672

TITLE: Organo rare earth metal catalysis for the living polymerizations of polar and nonpolar monomers

AUTHOR(S): Yasuda, Hajime

CORPORATE SOURCE: Department of Applied Chemistry, Faculty of Engineering, Hiroshima University,

Higashi-Hiroshima,

739-8527, Japan

SOURCE: Topics in Organometallic Chemistry (1999), 2(Lanthanides), 255-283

CODEN: TORCFV; ISSN: 1436-6002

PUBLISHER: Springer-Verlag

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review with 90 refs. on the rare earth metal initiated polymerization of polar

and nonpolar monomers in a living fashion. For example,

[SmH(C5Me5)2]2 or

LnMe(C5Me5)2(THF) (Ln=Sm, Y and Lu) conducted the polymerization of Me methacrylate (MMA) to give high-mol.-weight syndiotactic polymers (Mn >500,000, syndiotacticity >95%) quant. at low temperature (-95°C). The initiation mechanism was discussed on the basis of X-ray anal. of the

1:2

adduct of [SmH(C5Me5)2]2 with MMA. Synthesis of high mol. weight isotactic poly(MMA) with very narrow mol. weight distribution was for

the

first time realized by the efficient catalytic function of

Yb[C(SiMe3)3]2.

Living polymns. of alkyl acrylates (Me acrylate, Et acrylate, and Bu acrylate) were also possible by the excellent catalysis of

LnMe(C5Me5)2(THF) (Ln=Sm, Y). By taking advantages of the living

polymerization

ability, we attempted ABA triblock copolymn. of MMA/butyl acrylate/MMA

to

obtain rubber-like elastic polymers. Organo rare earth metal complexes such as LnOR(C5R5)2 or LnR(C5R5)2 conducted the living polymns. of

various

lactones such as  $\beta$ -propiolactone,  $\delta$ -valerolactone and

$\epsilon$ -caprolactone, and also conducted the block copolymns. of MMA

with various lactones. Lanthanum alkoxide(III) has good

catalytic activity for the polymerization of alkyl isocyanates.

Monodisperse

polymns. of lactide and various oxiranes were also achieved by the use of rare earth metal complexes. Cl sym. bulky organolanthanide(III) complexes such as  $\text{SiMe}_2[2(3),4-(\text{SiMe})_2\text{C}_5\text{H}_2]_2\text{LnCH}(\text{SiMe}_3)_2$  (Ln=La, Sm, and Y) show high catalytic activity towards linear polymerization of ethylene. Organolanthanide(II) complexes such as racemic  $\text{SiMe}_2(2-\text{SiMe}_3-4\text{-tert-Bu-C}_5\text{H}_2)_2\text{Sm}(\text{THF})_2$  as well as Cl sym.  $\text{SiMe}_2[2(3),4-(\text{SiMe}_3)_2\text{C}_5\text{H}_2]_2\text{Sm}(\text{THF})_2$  were found to have high activity for the polymerization of ethylene to give  $M_n > 10^6$  with  $M_w/M_n = 1.6$ . Utilizing the high polymerization activity of rare earth metal complexes towards both polar and nonpolar monomers, block copolymns. of ethylene with polar monomers such as Me methacrylate and lactones were for the first time realized. 1,4-Cis-Conjugated diene polymerization of 1,3-butadiene and isoprene became available by the efficient catalytic activity of  $\text{NdCl}(\text{C}_5\text{H}_5)_2/\text{AlR}_3$  or  $\text{Nd}(\text{octanoate})_3/\text{AlR}_3$ . The  $\text{Ln}(\text{naphthenate})_3/\text{Al}i\text{Bu}_3$  system allows selective polymerization of acetylene in cis-fashion.

REFERENCE COUNT: 114 THERE ARE 114 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L6 ANSWER 34 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1998:621517 CAPLUS  
 DOCUMENT NUMBER: 129:343734  
 TITLE: Polymer synthesis with lanthanoid complexes.  
 Polymer synthesis with organolanthanoid  
 initiators  
 AUTHOR(S): Yasuda, Hajime  
 CORPORATE SOURCE: Fac. Eng., Hiroshima Univ., Higashihiroshima, 739,  
 Japan  
 SOURCE: Kikan Kagaku Sosetsu (1998), 37, 175-192  
 CODEN: KKSOEC  
 PUBLISHER: Nippon Kagakkai  
 DOCUMENT TYPE: Journal; General Review  
 LANGUAGE: Japanese  
 AB A review with 66 refs. Organolanthanoid initiated polymns. of polar  
 and nonpolar monomers were reviewed briefly.  $\text{LnR}(\text{C}_5\text{Me}_5)_2$  (Ln = Y, La, Sm,  
 Yb,  
 Lu; R = H, Me) initiators were found to give high mol. weight  
 monodisperse  
 poly(Me methacrylate) with high syndiotacticity, while the  
 corresponding

isotactic high mol. weight monodisperse poly(Me methacrylate) was obtained with  $\text{Yb}[\text{CH}(\text{SiMe}_3)_2]_2$ .  $\text{LnR}(\text{C}_5\text{Me}_5)_2$  initiators are also effective for the living polymerization of alkyl acrylates such as Me, Et, and Bu acrylates and the polymers of  $M_n$  400,000 with  $M_w/M_n$  1.07 were obtained. Various lactones, cyclic carbonates, lactide, and oxiranes were also polymerized in a living fashion to produce large  $M_n$  with very small  $M_w/M_n$ . Rather complex binary or ternary organolanthanoid initiators were found to have high catalytic activity for the polymerization of conjugated dienes and acetylene derivs. Bulky organolanthanoids such as divalent Cl sym.  $\text{Me}_2\text{Si}[2,4-(\text{SiMe}_3)_2-\text{C}_5\text{H}_2][3,4-(\text{SiMe}_3)_2-\text{C}_5\text{H}_2]\text{Sm}(\text{THF})_2$  and racemic  $\text{Me}_2\text{Si}[2-\text{SiMe}_3-4-\text{tBu}-\text{C}_5\text{H}_2]_2\text{Sm}(\text{THF})_2$  as well as trivalent Cl sym.  $\text{Me}_2\text{Si}[2,4-(\text{SiMe}_3)_2-\text{C}_5\text{H}_2][3,4-(\text{SiMe}_3)_2-\text{C}_5\text{H}_2]\text{SmCH}(\text{SiMe}_3)_2$  were very active for the polymerization of ethylene and the polymers of  $M_n > 300,000$  with  $M_w/M_n < 1.6$  were obtained. By taking advantage of the living polymerization abilities for polar and nonpolar monomers, block copolymns. of ethylene with Me methacrylate or caprolactone were examined, and these polymns. produced desired block copolymers with high chemical reactivity.

L6 ANSWER 35 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:207507 CAPLUS

DOCUMENT NUMBER: 130:237898

TITLE: Novel electron transfer polymerization processes with alkali metal supramolecular complex as catalyst

AUTHOR(S): Jedlinski, Zbigniew

CORPORATE SOURCE: Center Polymer Chem., Polish Acad. Sci., Zabrze, 41800, Pol.

SOURCE: Macromolecular Symposia (1998), 134(Electron Transfer

Processes and Reactive Intermediates in Modern Chemistry), 51-61

CODEN: MSYMEC; ISSN: 1022-1360

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review with 22 refs. Single electron-transfer SET induced usually by organometallic complexes of transition metals or alkali metal complexes of

arenes e.g. naphthalene is common in organic reactions. Unusual 2-electron

transfer to suitable acceptor mol. mediated by recently discovered alkali

metal supramol. complexes in aprotic etheral solvents is presented. The

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capability of these solns. of transferring 2 electrons to a suitable organic substrate and formation of corresponding carbanions opens new door in synthetic chemical. The carbanions are interesting synthons in the many organic reactions and catalysts in anionic polymerization processes. Reactions of some vinyl compds., alkyl and silyl halides, as well as ring-opening polymerization of  $\beta$ -lactones and oxiranes are discussed.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L6 ANSWER 36 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1997:215960 CAPLUS  
DOCUMENT NUMBER: 126:263677  
TITLE: Catalytic reactions of samarium(II) iodide  
AUTHOR(S): Corey, E. J.; Zheng, Guo Zhu  
CORPORATE SOURCE: Dep. Chemistry and Chemical Biology, Harvard Univ.,  
Cambridge, MA, 02138, USA  
SOURCE: Tetrahedron Letters (1997), 38(12), 2045-2048  
CODEN: TELEAY; ISSN: 0040-4039  
PUBLISHER: Elsevier  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB A system for in situ regeneration of SmI<sub>2</sub> from SmI<sub>3</sub> is described which allows the annulation of ketones to  $\gamma$ -lactones, the deoxygenation of oxiranes to olefins and radical  $\pi$ -cyclization to be conducted with 10 mol% SmI<sub>2</sub>.

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE

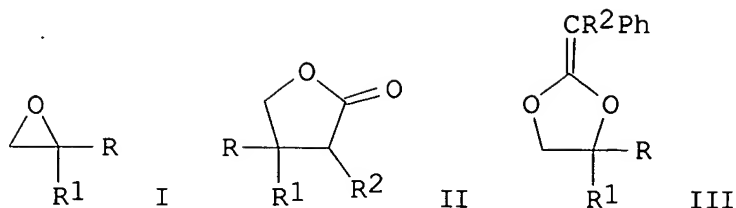
FORMAT

L6 ANSWER 37 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1997:559653 CAPLUS  
DOCUMENT NUMBER: 127:206018  
TITLE: Polyester ethers from cyclic ethers and lactones: synthesis and enzymic degradation  
AUTHOR(S): Shirahama, Hiroyuki; Sakane, Masanori; Yasuda, Hajime  
CORPORATE SOURCE: Dep. Appl. Chem., Fac. Eng., Hiroshima Univ.,  
Hiroshima, 739, Japan  
SOURCE: Kobunshi Ronbunshu (1997), 54(8), 499-511  
CODEN: KBRBA3; ISSN: 0386-2186  
PUBLISHER: Kobunshi Gakkai  
DOCUMENT TYPE: Journal  
LANGUAGE: Japanese

AB We have prepared the polyesterethers from cyclic ethers [ethylene oxide (EO), oxetane (OX), THF (THF)] and lactones

[ $\delta$ -valerolactone (VL) and  $\epsilon$ -caprolactone (CL)] in one-pot synthesis. We have investigated the effect of the ether unit on the enzymic degradation of the polymers obtained by cholesterol esterase. The measurements of NMR and thermal properties for the copolymers revealed that the chain sequences of EO/lactone copolymers were block, while those of THF/lactone and OX/VL copolymers were random. The block copolymers of OX with CL were prepared in two-pot synthesis, because each homopolymer was formed in a one-pot method. The introduction of (hydrophilic) ether unit into aliphatic polyester (viz., polylactone) chains resulted in the increase in enzymic degradation. The (enzymic) degradability of random copolymers was greater than that of block copolymers. This result was confirmed by examining the degradability of DXO copolymers [DXO : 1,5-dioxepan-2-one; corresponding to the alternating unit of EO and  $\beta$ -propiolactone (PL)]. Namely, the enzymic degradation of (more random) DXO/PL copolymers was greater than that of EO/PL (random) copolymers. However, DXO/PL random copolymers were inferior to the PL homopolymer in thermal properties. Hence, we have synthesized diblock and triblock copolymers of DXO with lactone (VL or CL), and studied the enzymic degradation of these block copolymers. Triblock copolymers showed a good degradability without much decreasing in the thermal properties.

L6 ANSWER 61 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1988:630722 CAPLUS  
 DOCUMENT NUMBER: 109:230722  
 TITLE: Ph4SbI-catalyzed selective formation of  $\gamma$ - and  $\sigma$ - lactones from oxiranes or oxetanes with ketenes  
 AUTHOR(S): Fujiwara, Masahiro; Imada, Makoto; Baba, Akio; Matsuda, Haruo  
 CORPORATE SOURCE: Fac. Eng., Osaka Univ., Osaka, 565, Japan  
 SOURCE: Journal of Organic Chemistry (1988), 53(25), 5974-7  
 CODEN: JOCEAH; ISSN: 0022-3263  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 109:230722  
 GI



AB Oxiranes I ( $R = H, Me$ ;  $R1 = Me, Et, Ph, CH:CH_2$ ) underwent cycloaddn. reactions with ketenes  $R_2CPh:CO$  ( $R_2 = Ph, Et$ ) in the presence  $Ph_4SbI$  (preferred catalyst) to give  $\gamma$ - lactones II and/or cyclic ketone acetals III. Similar reactions of oxetane or phenyloxetane with ketones afforded  $\delta$ - lactones; cyclic ketene acetals were not formed as readily in this case.

L6 ANSWER 62 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1989:230866 CAPLUS

DOCUMENT NUMBER: 110:230866

TITLE: New addition reaction of active ester or cyclic ester

with epoxy compounds catalyzed by insoluble polystyrene-bound quaternary phosphonium or

ammonium

salts

AUTHOR(S): Nishikubo, Tadatomi; Shiina, Atsushi; Isobe, Naoki  
CORPORATE SOURCE: Fac. Eng., Kanagawa Univ., Yokohama, 221, Japan  
SOURCE: Chemistry Letters (1988), (10), 1605-8

CODEN: CMLTAG; ISSN: 0366-7022

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 110:230866

AB Regioselective addition reaction of active ester S-Ph thioacetate with 2-phenoxyethyloxirane was catalyzed by insol. polystyrene-bound quaternary phosphonium or ammonium salts and gave

1-phenoxy-3-thiophenoxy-

2-Pr acetate. Five-membered cyclic carbonates were also synthesized by the reaction of cyclic ester  $\beta$ -butyrolactone with some epoxy compds. using the same polymeric catalysts.

L6 ANSWER 63 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 12

ACCESSION NUMBER: 1988:493797 CAPLUS

DOCUMENT NUMBER: 109:93797

TITLE: Catalytic preparation of cyclic carbonates from oxirane derivatives and  $\beta$ -lactones

INVENTOR(S): Hida, Takashi; Nishikubo, Tatatomi

PATENT ASSIGNEE(S): Nisso Maruzen Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

DOCUMENT TYPE: CODEN: JKXXAF  
 LANGUAGE: Patent  
 FAMILY ACC. NUM. COUNT: Japanese  
 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 62286987	A2	19871212	JP 1986-129800	19860604
PRIORITY APPLN. INFO.:			JP 1986-129800	19860604

OTHER SOURCE(S): CASREACT 109:93797

GI For diagram(s), see printed CA Issue.

AB Cyclic carbonates I [R1 = H, C1-10 hydrocarbyl when m = 1; R1 = m-valent

C2-20 hydrocarbon group when m = 2, 3; n = 0, 1], useful as special-purpose solvents and monomers, are prepared by catalytic reaction of oxiranes II with  $\beta$ - lactones III (R2-5

= H, C1-10 alkyl). The catalysts for the reaction may be

R6R7R8R9A+ X- (A = N, P; R6-9 = C3-10 alkyl or aralkyl, but 1 of R6-9 may be Me, Et; X = anion or a complex of crown ether IV (A1, A2 = H, C1-4 alkyl, or A1 and A2 are bonded to form a alicyclic or aromatic ring in which

vicinal C are bonded to the ether skeleton; p = 5-10) with alkali metals.

Thus, a toluene solution of  $\beta$ -butyrolactone was added dropwise to a solution of II (R1 = Ph, m = n = 1) (V) and Bu4N+ Br- in toluene at 100° over 6 h and the reaction was allowed to continue for 9 h to give 88.6% (based on V) I (R1 = Ph, m = n = 1).

L6 ANSWER 64 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1988:37543 CAPLUS

DOCUMENT NUMBER: 108:37543

TITLE: Enzymes in organic synthesis. 39.  
 Preparations of chiral cyclic acid-esters and bicyclic lactones via stereoselective pig liver esterase catalyzed hydrolyses of cyclic meso diesters

AUTHOR(S): Sabbioni, Gabriele; Jones, J. Bryan

CORPORATE SOURCE: Dep. Chem., Univ. Toronto, Toronto, ON, M5S 1A1, Can.

SOURCE: Journal of Organic Chemistry (1987), 52(20), 4565-70

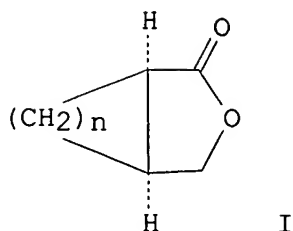
CODEN: JOCEAH; ISSN: 0022-3263

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 108:37543

GI



AB Pig liver esterase-catalyzed hydrolyses of meso-dimethyl cyclopropane-, cyclobutane-, and cyclohexane-1,2-dicarboxylates are enantiotopically specific, giving acid-ester products that are readily converted into  $\gamma$ -lactones, e.g., I ( $n = 1-4$ ) of >97% ee that are of value as chiral synthons. There is a dramatic change of stereospecificity on going from the cyclopropane and cyclobutane diesters to the cyclohexane substrate, with the cyclopentane diester hydrolysis representing the changeover point within the series. This reversal of enzyme stereospecificity is explicable in terms of a two binding-pocket active-site model. Hydrolyses of di-Me oxirane -1,2-dicarboxylate and of cyclopropane-1,2-diacetates are also stereoselective, giving products ee's of up to 30-70%.

L6 ANSWER 65 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1984:210500 CAPLUS

DOCUMENT NUMBER: 100:210500

TITLE: Polymerization of substituted oxiranes and epoxy aldehydes

AUTHOR(S): Jedlinski, Z. J.; Kasperczyk, J.; Bero, M.

CORPORATE SOURCE: Inst. Polym. Chem., Pol. Acad. Sci., Zabrze, 41-800,

Pol.

SOURCE: Polymer Preprints (American Chemical Society, Division

of Polymer Chemistry) (1984), 25(1), 237-9

CODEN: ACPPAY; ISSN: 0032-3934

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The ring-opening initiation step in the polymerization of styrene oxide (I)

[96-09-3] in the presence of Na alkoxides occurred in both the alpha and

beta positions, and beta-ring opening became predominant as the alkoxide

substituent became bulkier. The polymerization of I in the presence of  $\text{Al}(\text{OPr-iso})_3$  [555-31-7] gave an eutectic, head-to-tail polymer with a regular chain structure. Phenyl glycidyl ethers polymerized in the presence

of Lewis acids and Al alkoxides to give linear and/or cyclic oligomers with an irregular chain structure and 45% head-to-tail linkages. The initiation step for epoxy aldehydes in the presence of alkoxides or Al



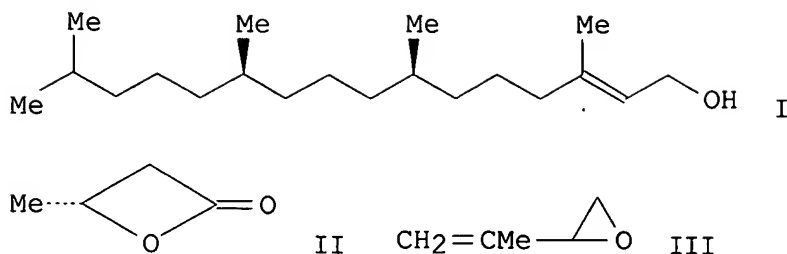
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alkyls was a disproportionation reaction leading to the formation of diepoxy esters or epoxy lactones.

L6 ANSWER 66 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 13  
ACCESSION NUMBER: 1982:544701 CAPLUS  
DOCUMENT NUMBER: 97:144701  
TITLE: Palladium-catalyzed carbonylation of vinyl  
halides: a  
route to the synthesis of  $\alpha$ -methylene  
lactones  
AUTHOR(S): Martin, Larry D.; Stille, J. K.  
CORPORATE SOURCE: Dep. Chem., Colorado State Univ., Fort Collins, CO,  
80523, USA  
SOURCE: Journal of Organic Chemistry (1982), 47(19), 3630-3  
CODEN: JOCEAH; ISSN: 0022-3263  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB  $\alpha$ -Methylene  $\gamma$ - lactones were prepared in high  
yields by the Pd-catalyzed carbonylation of alkyl-substituted  
3-bromobut-3-en-1-ols under mild conditions. The bromo alcs. were  
obtained by the reaction of [1-(trimethylsilyl)vinyl]magnesium bromide  
with epoxides followed by conversion of the trimethylsilyl compds. to  
the  
bromides. By starting with optically active epoxides such as  
(R)-1,2-epoxypropane or (2R,3R)-2,3-epoxybutane, the corresponding  
lactones were obtained virtually optically pure. The  
carbonylation reaction is selective in that it generates only  $\gamma$ -  
lactones when there is a choice of two vinylic iodides or two  
alcs. that could lead either to the 5- or 6-membered rings.

L6 ANSWER 67 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1982:162974 CAPLUS  
DOCUMENT NUMBER: 96:162974  
TITLE: A stereocontrolled total synthesis of  
optically active (R,R)-phytol  
AUTHOR(S): Fujisawa, Tamotsu; Sato, Toshio; Kawara, Tatsuo;  
Ohashi, Kazuo  
CORPORATE SOURCE: Chem. Dep. Resour., Mie Univ., Mie, 514, Japan  
SOURCE: Tetrahedron Letters (1981), 22(48), 4823-6  
CODEN: TELEAY; ISSN: 0040-4039  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
GI



AB The title diterpene alc. (I), stereospecifically prepared in 14 steps from (R)-pulegone, possessed high stereochem. purity in both absolute and geometrical configurations. The key steps in the reaction sequence were the Cu(I)-catalyzed Grignard reactions involving SN2 type ring cleavage of the lactone II and SN2' type ring cleavage of the oxirane III.

L6 ANSWER 68 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1981:47826 CAPLUS

DOCUMENT NUMBER: 94:47826

TITLE: Configurational rules governing the stereochemical control of chiral initiators in ring-opening polymerizations of heterocyclic monomers

AUTHOR(S): Spassky, Nicolas; Leborgne, Alain; Momtaz, Ardechir;

Sepulchre, Maurice  
CORPORATE SOURCE: Lab. Chim. Macromol., Univ. Pierre et Marie Curie, Paris, 75230, Fr.

SOURCE: Journal of Polymer Science, Polymer Chemistry Edition

(1980), 18(10), 3089-99

CODEN: JPLCAT; ISSN: 0449-296X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Configuration rules were established for the polymerization of cyclic monomers with chiral initiators. The latter recognize in the monomer an asym. carbon of homochiral configuration. The chirality of the initiator is defined by the local asymmetry of the ligand and by the overall asymmetry of the particular arrangement of catalytic aggregates. Two types of process called homosteric and antistERIC, which apply to the polymerization of resolvable monomers and achiral monomers of meso structure, are defined. These configurational rules have a general character and are verified in examples of differently substituted three- or four-membered cyclic monomers (oxiranes, thiiranes,  $\beta$ - lactones ). Stereoselective polymerization appears to be an original method for the determination of the absolute configuration of some monomers of unknown chirality.

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L6 ANSWER 69 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 14

ACCESSION NUMBER: 1981:174570 CAPLUS

DOCUMENT NUMBER: 94:174570

TITLE: The reaction of small ring compounds with carbon monoxide. The carbonylation of oxirane

AUTHOR(S): Kamiya, Yoshio; Kawato, Katsuhito; Ota, Hiroyuki

CORPORATE SOURCE: Fac. Eng., Univ. Tokyo, Tokyo, 113, Japan

SOURCE: Chemistry Letters (1980), (12), 1549-52

CODEN: CMLTAG; ISSN: 0366-7022

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 94:174570

AB The carbonylation of oxiranes catalyzed by  $\text{RhCl}(\text{CO})(\text{PPh}_3)_2$  afforded  $\beta$ - lactones. Various factors which control the reaction are examined

L6 ANSWER 70 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 15

ACCESSION NUMBER: 1980:111134 CAPLUS

DOCUMENT NUMBER: 92:111134

TITLE: Organic syntheses using transition metal complexes. 8. Studies on the synthesis of unsaturated  $\delta$ - lactones by cyclocarbonylation of vinyloxiranes with transition metal complexes

AUTHOR(S): Aumann, Rudolf; Ring, Horst; Krueger, Carl; Goddard,

R.

CORPORATE SOURCE: Org.-Chem. Inst., Univ. Muenster, Muenster, D-4400, Fed. Rep. Ger.

SOURCE: Chemische Berichte (1979), 112(11), 3644-71

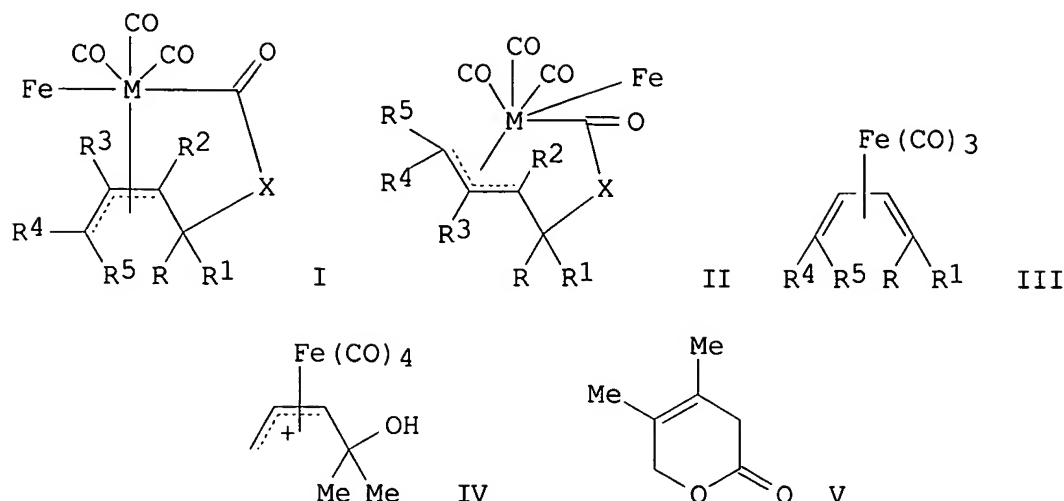
CODEN: CHBEAM; ISSN: 0009-2940

DOCUMENT TYPE: Journal

LANGUAGE: German

OTHER SOURCE(S): CASREACT 92:111134

GI



AB The transition metal-assisted carbonylation of vinyloxiranes to unsatd.  $\delta$ - lactones was verified and studied mechanistically by use of organometallic model reactions. The light induced complexation of vinyloxiranes by  $\text{Fe}(\text{CO})_5$  was a multistep reaction in which diastereoisomeric cis- (I) and trans-ferralactones (II) ( $\text{R}-\text{R}_5 = \text{H}, \text{Me}$ ;  $\text{X} = \text{O}$ ) were formed. I and II ( $\text{X} = \text{O}$ ,  $\text{R} = \text{R}_1 = \text{R}_4 = \text{R}_5 = \text{Me}$ ,  $\text{R}_2 = \text{R}_3 = \text{H}$ ) were characterized crystallog. and studied chemical concerning their reactions with nucleophiles and electrophiles. Reaction of II and III ( $\text{X} = \text{O}$ ) with  $\text{MeNH}_2$  gave ferralactams I and II ( $\text{X} = \text{NMe}$ ) by migration of the allyl group and inversion at C-1 as well as C-4 indicating an attack of amine at the exo-position of C-4. The reaction of ferralactones with  $\text{OH}^-$  gave CO32- and diene complexes III ( $\text{R}, \text{R}_1, \text{R}_4, \text{R}_5 = \text{H}, \text{Me}$ ) with inversion at C-1 only, indicating that the reaction had been initiated by attack of  $\text{HO}^-$  at a terminal carbonyl group. On electrophilic attack ferralactones form allyl cations, e.g., IV by opening of the CO-O bond. Carbonylation of ferralactones with CO in aprotic solvents gave good yields of unsatd.  $\delta$  lactones, e.g., V.

=> log y  
COST IN U.S. DOLLARS  
FULL ESTIMATED COST

SINCE FILE	TOTAL
ENTRY	SESSION
266.58	266.79

10/523,264

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE  
ENTRY  
-66.75

TOTAL  
SESSION  
-66.75

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